

The Amendment

Claim 33 was amended to recite in the preamble a method of fabricating a plurality of individual chips for conducting chemical reactions. Support therefor is in the Specification, for example, original Claim 33. Claim 33 was amended in step (a) to recite that each of said chips has a matrix of electronically addressable sites, each site for electronically carrying out a chemical reaction. Support therefor is in the Specification, for example, original Claim 33 and page 16, lines 24-25.

Claim 34 was amended to place it in independent form. Support therefor is in the Specification, for example, original Claims 33 and 34 and page 16, lines 24-25.

Claim 35 was amended to place it in independent form. Support therefor is in the Specification, for example, original Claims 33-35 and page 16, lines 24-25.

Claim Objections

Claims 34 and 35 were objected to under 37 C.F.R. 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Without in any way acquiescing in the position of the Examiner, Applicant submits that the above amendments obviate these objections.

Claim 35 was objected to because the claim did not end in period. Applicant submits that the above amendments obviate this ground of objection.

Rejection under 35 U.S.C. §112

Claims 33-35 were rejected under the second paragraph of the above code section as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Without in any way acquiescing in the position of the Examiner, Applicant submits that the above amendments obviate this ground of rejection.

Rejection under 35 U.S.C. §102

Claims 33-35 were rejected under paragraph (b) of the above code section as being anticipated by U.S. Patent No. 5,200,051 (Cozzette). Cozzette discloses a method for the microfabrication of electronic devices adapted for the analyses of biologically significant analyte species. The patented method allows for close control over the dimensional features of the various components and layers established on a suitable substrate. Such control extends to those parts of the devices that

incorporate the biological components that enable these devices to function as biological sensors. The methods of Cozzette involve electrochemical detection of particular analyte species of biological and physiological significance using a substrate/label signal generating pair that produces a change in the concentration of electroactive species selected from the group consisting of dioxygen and hydrogen peroxide. Microfabricated glucose sensor of Cozzette comprises a silicon substrate on which is established thin-film structures that make up an amperometric electrochemical transducer, or base sensor. Cozzette discloses a final step in manufacturing the devices, which involves dicing a wafer on which a number of biosensors have been fabricated. Cozzette points out (column 40, lines 64-66) that this relatively drastic step is capable of effectively destroying all but the most robust thin-film structures that are present on the substrate wafer.

The method of the invention of Claim 33 is directed to a method of fabricating a plurality of individual chips for conducting chemical reactions. A plurality of the chips is prepared on a single silicon substrate. Each of the chips has a matrix of electronically addressable sites. Each site provides for electronically carrying out a chemical reaction. The single silicon substrate is severed into the individual chips.

Cozzette does not disclose or suggest the aforementioned method of the invention. Cozzette discloses dicing a wafer into individual biosensors for sensing a result of an analysis. On the other hand, in the present invention a single silicon substrate is severed into individual chips, each of which has a matrix of electronically addressable sites. Each of the sites provides for electronically carrying out a chemical reaction.

The method of the invention of Claim 34 is directed to a method of fabricating a plurality of individual chips for conducting a part of the synthesis of an oligonucleotide. A plurality of the chips is prepared on a single silicon substrate. Each of the chips has a matrix of electronically addressable sites. Each site provides for electronically carrying out a part of the synthesis of the oligonucleotide. The single silicon substrate is severed into the individual chips.

Cozzette does not disclose or suggest the aforementioned method of the invention. Cozzette discloses dicing a wafer into individual biosensors for sensing a result of an analysis. On the other hand, in the present invention a single silicon substrate is severed into individual chips, each of which has a matrix of electronically

addressable sites. Each of the sites provides for electronically carrying out a part of a synthesis of an oligonucleotide.

The method of the invention of Claim 35 is directed to a method of fabricating a plurality of individual chips for conducting a synthesis of oligonucleotides in the form of oligonucleotide arrays. A plurality of the chips is prepared on a single silicon substrate. Each of the chips has a matrix of electronically addressable sites. Each site provides for electronically carrying out a part of the synthesis of the oligonucleotides in the form of oligonucleotide arrays. The single silicon substrate is severed into the individual chips.

Cozzette does not disclose or suggest the aforementioned method of the invention. Cozzette discloses dicing a wafer into individual biosensors for sensing a result of an analysis. On the other hand, in the present invention a single silicon substrate is severed into individual chips, each of which has a matrix of electronically addressable sites. Each of the sites provides for electronically carrying out a part of a synthesis of an oligonucleotide.

CONCLUSION

Claims 33-35 satisfy the requirements of 35 U.S.C. 103 and 112. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the Specification

On page 1, the paragraph after the section entitled "Cross-Reference to Related Applications" was amended as follows:

This is a divisional of co-pending application Serial No. 09/100,152 filed June 18, 1998, now U.S. Patent No. 6,251,595 [06/18/99].

In the Claims

The claims have been amended as follows:

33. (amended) A method of fabricating a plurality of individual chips for conducting chemical reactions, [each for electronically addressing a matrix of sites, each site to which may be directed a chemical reaction,] said method comprising:

(a) preparing a plurality of said chips on a single silicon substrate, wherein each of said chips has a matrix of electronically addressable sites, each site for electronically carrying out a chemical reaction, and

(b) severing said single silicon substrate into said individual chips.

34. (amended) A method of fabricating a plurality of individual chips for conducting a part of a synthesis of oligonucleotides, [The method of Claim 33 wherein said chemical reaction is part of a synthesis of oligonucleotides], said method comprising:

(a) preparing a plurality of said chips on a single silicon substrate, wherein each of said chips has a matrix of electronically addressable sites, each site for electronically carrying out a part of a synthesis of oligonucleotides, and

(b) severing said single silicon substrate into said individual chips.

35. (amended) A method of fabricating a plurality of individual chips for conducting a synthesis of oligonucleotides to form oligonucleotide arrays, [The method of Claim 34 wherein oligonucleotide arrays are synthesized on said chips on said single silicon substrate], said method comprising:

(a) preparing a plurality of said chips on a single silicon substrate, wherein each of said chips has a matrix of electronically addressable sites, each site for electronically carrying out a synthesis of an oligonucleotide to form oligonucleotide arrays, and

(b) severing said single silicon substrate into said individual chips.